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Social Psychology

Modeling Symbolic Interaction

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Symbolic interactionism (e.g., McCall & Simmons 1978; Stryker 1980) provides insights into how humans understand social events. Definitions of situations categorize settings and the people in them, narrowing a person's attention to a constrained range of phenomena, a restricted set of identities and objects that guide understanding and anticipation of social events. Events are created and interpreted to confirm the situational meanings provided by the definition of the situation. People create events to establish identities, to maintain identities, and to restore damaged identities. Expectations for another's behavior reflect his or her

Note: Returning to the University of Chicago twenty years after graduate studies gives me an opportunity to thank my professors, several of whom are attending this conference. I studied with Salvatore Maddi, Elihu Katz, James Davis, Mayer Zald, Peter Blau, Edward Shils, and they have my gratitude for intellectual guidance. Above all, I want to thank Fred Strodbeck for the support he gave me and acknowledge how influenced I was by the loving presentations of social psychological theories which he gave in his role of teacher.

identity, and if an observed event does not confirm an identity, then the person may be reinterpreted, labeled, so that the event does confirm a new identification.

These notions provide a general framework for understanding the generation of sociocultural knowledge, but there are problems to solve. What aspects of social classifications are confirmed or disconfirmed by reality? What processes are involved in confirmations? How are discrete, qualitative social classifications abstracted and used to generate information beyond what is available in the classifications themselves?

Affect Control Theory

Affect control theory (Heise 1977, 1978, 1979) provides a model of social relations developed from symbolic interactionism and the premise that social events are constructed and reconstructed so as to confirm the meanings of social classifications. The theory proposes that affective associations are crucial dimensions of meaning, that affective dynamics underlie the confirmation-disconfirmation process, and that people translate back and forth between qualitative classifications of the perceived world and a fluid domain of affectivity where creativity functions.

Sentiments

Osgood (1962) reviewed a variety of evidence demonstrating that three basic dimensions are involved in affective response. The Evaluation, or attitudinal, dimension—measured by semantic differential ratings of good versus bad, nice versus awful—represents the pleasant-unpleasant aspect of affect. The Potency dimension—measured by contrasts of powerful-powerless, big-little—represents the sense of ascendancy versus vulnerability in affect. The Activity dimension—with rating scales like fast-slow, lively-quiet—represents affective arousal. Extensive cross-cultural research (Osgood, May, & Miron 1975) showed that these three dimensions of response—EPA—are universal, present in people around the world, regardless of culture or language.

Every social classification—setting, identity, trait, mood, status characteristic, behavior, etc.—carries a sentiment that can be assessed by asking what the classification connotes in terms of goodness, powerfulness, liveliness. Sentiment implies a fundamental feeling about something, not just a fleeting impression, so sentiments are estimated by averaging across repeated measurements. When focusing on a homogeneous cultural or subcultural group, ratings of a social classification can be averaged over the focal population in order to measure social sentiments.

Semantic differential scales for these three dimensions have been used to measure sentiments for thousands of social classifications. At present, large EPA (Evaluation, Potency, Activity) dictionaries are available for three populations—undergraduates in the U.S. South (Smith-Lovin & Heise 1983), Canadian undergraduates (MacKinnon 1983), and working-class Catholic youths in Belfast, Northern Ireland (Smith-Lovin, Heise, & Willigan 1983). The American dictionaries contain EPA profiles for 765 social identities, 440 attributes, 600 behaviors, and 345 settings. The Canadian and Irish dictionaries contain EPA profiles for about 600 social identities and 600 social behaviors. Table 1 shows some settings, identities, traits, and behaviors for which sentiments vary widely among U.S. undergraduates. Numerical values roughly correspond to assumed-interval codings of -4 to $+4$ with good, powerful, lively on the positive side (the actual metric is somewhat more refined, based on successive-intervals scaling—Heise 1978).

Table 1 suggests possible gender subcultures among the American undergraduates. A “disciplinarian” is viewed less favorably by males than by females; “imprison” is more lively for females than males; “feminine” is potent for females, not for males; “industrious” is more lively for males than females; “abandon” is more lively for females than males. (In Table 1, gender differences of 0.8 are significant at the .05 level in a two-tail test.)

Transient Feelings

How can social events confirm or disconfirm sentiments? Affect control theory proposes that fundamental sentiments are compared with transient feelings that result from events in order to assess whether the event was confirming or not. These outcome feelings—varying along the same EPA dimensions as sentiments—provide a basis for appraising confirmation-disconfirmation.

A confirming event is one that generates transient feelings that nearly match fundamental sentiments. “A son and a grandparent were together in a village, and the son thrilled the grandparent” is an example. Southern male undergraduates who were presented with this event description said the Son was good, very slightly powerful, and lively, and this is close to their fundamental sentiment about a Son—the way they rated Son outside of the context of any event, as shown in Table 2. The rating of the behavior, Thrill, in the context of the event was fairly similar to the rating of “to Thrill someone” presented in isolation. Respondents’ feeling about the Village where the event happened also was similar to rating “a Village” out of context. Respondents rated the Grandparent somewhat dif-

Table 1 Sentiments for Some Social Classifications

	Male			Female		
	E	P	A	E	P	A
Settings						
Ballgame	1.97	1.46	1.65	1.72	1.53	2.00
Drive-in movie	0.83	-0.38	1.26	0.79	0.15	1.25
Mob	-1.46	2.23	1.88	-1.23	1.86	2.01
Gay Bar	-0.90	-0.66	1.38	-0.80	-0.28	0.97
Identities						
Athlete	1.33	1.82	2.13	1.00	1.78	1.48
Child	1.42	-1.48	2.31	1.94	-1.10	2.52
Disciplinarian	-0.62	1.02	-0.93	0.25	1.56	-0.23
Slut	-1.81	-1.18	1.81	-2.03	-0.53	1.18
Traits						
Industrious	1.98	1.74	1.89	1.54	2.09	0.96
Feminine	1.29	-0.29	0.70	1.81	0.81	0.28
Ruthless	-1.75	1.00	1.40	-2.26	1.40	1.25
Rude	-2.08	-1.09	1.17	-1.46	-0.49	1.02
Behaviors						
Thrill	1.68	1.51	1.75	1.37	1.25	1.45
Agree with	0.98	0.38	0.02	0.55	0.34	-0.58
Imprison	-1.46	1.64	-0.53	-1.12	1.50	0.70
Abandon	-2.55	-0.78	0.94	-2.60	0.54	0.32

ferently from the way they rated Grandparent out of context, but not differently enough to make the event disconfirming.

"A coward and a roughneck were together in a fight, and the coward soothed the roughneck" is a disconfirming event. This Coward impresses respondents as being neither good nor bad, slightly weak, and slightly lively—quite different than the out-of-context rating of a Coward, as shown in the bottom part of Table 2. The event also creates incongruous feelings about the Roughneck, who becomes excessively nice, too weak, and too quiet. The event somewhat disturbs feelings about Soothing.

Table 2 Affective Dynamics in Two Events

		Fundamental Sentiment	Transient Feeling	Difference	Sum of Squared Differences
Confirming Event					
Son	E	1.67	1.17	-0.50	0.46
	P	0.08	0.37	0.29	
	A	1.76	1.40	-0.36	
Thrill	E	1.68	0.82	-0.86	0.94
	P	1.51	1.17	-0.34	
	A	1.75	1.46	-0.29	
Grandparent	E	2.24	1.32	-0.92	1.67
	P	0.71	-0.01	-0.72	
	A	-1.77	-1.22	0.55	
Village	E	1.19	0.81	-0.38	0.30
	P	-0.35	-0.07	0.28	
	A	-0.67	-0.39	0.28	
Event Total					3.37
Disconfirming Event					
Coward	E	-1.45	0.10	1.55	5.83
	P	-2.24	-0.64	1.60	
	A	-0.51	0.42	0.93	
Soothe	E	1.73	0.96	-0.77	1.50
	P	1.09	0.73	-0.36	
	A	-1.26	-0.38	0.88	
Roughneck	E	-1.83	-0.61	1.22	4.08
	P	1.25	0.57	-0.68	
	A	2.09	0.63	-1.46	
Fight	E	-1.00	-0.77	0.23	0.35
	P	0.66	1.17	0.51	
	A	1.82	1.62	-0.20	
Event Total					11.76

Only the setting, a Fight, is undisturbed. These deflections of feeling create nonconfirmation.

We can quantitatively measure how much the disconfirming event deflects transient feelings ($E'P'A'$) away from sentiments (EPA) by computing a sum of squared differences. Table 2 shows that the total of 11.76 deflection units far exceeds the equivalent measure computed for the confirming event above: 3.37 units of deflection.

Affective Dynamics

What processes allow people to generate social knowledge which they have not learned explicitly? Affect control theory proposes that the creative aspect of social process is based on affective dynamics.

Events are perceived in terms of social classifications which evoke affective associations. An event may produce emotions that signal how the transient feelings compare with fundamental sentiments. Continuing waves of affective dynamics occur as the confirmation principle operates on both fundamental sentiments and transient feelings. Outcomes are affective determinations that can be characterized as EPA profiles, like the profile representing an appropriate behavior in the given circumstances.

A formal model to represent these processes has been developed, based on empirically derived impression-formation equations.

REACTIONS. A simple social event can be viewed as consisting of an actor, a behavior, and an object person, and the affective impact of an event can be predicted from current feelings about these elements. For example, for a person currently feeling that a Mother and Child are quite good and Hurting is quite bad, it is predictable that the Mother Hurting her Child would be viewed as bad.

Predictions are obtained with equations which accept quantitative measurements of pre-existing feelings and yield quantitative descriptions of outcome feelings. The equations are derived from data like those in Table 2—in-context and out-of-context ratings for the elements in a sample of events. Structural equations for predicting outcomes may be estimated by regressing in-context measurements on out-of-context measurements. Interaction effects turn out to be important, so products of out-of-context variables also are included as predictors. This procedure produces equations like the following.

$$A'_e = -.43 + .39A_e + .48B_e + .15B_eO_e$$

This says that the perceived goodness of the actor in an event (A') is a function of the initial attitude toward the actor (A), attitude toward the behavior (B), and a balance effect (BO) described by multiplying goodness of act with goodness of object (for example, bad onto bad is good). This particular equation accounts for 86 percent of the variance in outcome impressions of goodness-badness (Gollob 1968).

Equations have been obtained for predicting how a given event changes prior feelings of goodness, power, and liveliness into outcome feelings along the same dimensions for actors, behaviors, objects, and settings (Heise 1969, 1970, 1978; Heise & Smith-Lovin 1981; Smith-Lovin & Heise 1982, 1983).¹

PROACTIONS. Proaction equations are derived from the reaction equations under the assumption that people construct events that will produce impressions which confirm fundamental sentiments about event elements. For example, a normal mother would not hurt her child because the act disconfirms the fundamental goodness of Mother and Child; instead she would choose an act like Assist which reinforces the meanings of Mother and Child and Assisting.

The analytic problem is to use the reaction equations as a basis for predicting new behavior that best confirms sentiments, given current feelings about the actor and object. The pre-event sentiments and feelings toward the actor and object are taken as givens. The unknown behavior should minimize deflections of post-event transient feelings away from fundamental sentiments. Algebraic expressions are set up to represent the differences between future outcome feelings and fundamental sentiments, employing the reaction equations as predictors of outcomes, so only pre-event quantities are involved. The expressions are differentiated to find their minima, resulting in proaction equations that define the EPA profiles for the required behavior in terms of pre-event feelings and sentiments about the given actor and object.

The minimization logic also deals with another event construction problem—redefining people who are involved in events that do not confirm their identities. For example, a mother is not expected to hurt

¹ Current equations based on 515 event descriptions are more complex than the one above, with more interaction terms and cross-dimensional effects (e.g., a lively behavior reduces actor goodness). Newly developed statistical procedures (Smith-Lovin & Heise 1983, app. D) were used to adjust variances and covariances of predictor variables in order to minimize estimation bias due to measurement errors, and a maximum likelihood algorithm was used to obtain parameter estimates.

her child, so a woman who does hurt her child might be labeled with a negative identity. In this case the analytic problem is to define the kind of actor who would be confirmed by a given event. Applying the same procedures as before results in event reconstruction equations that define the EPA sentiment profile for the required actor in terms of sentiments about the given behavior and object. Examples later will show some of the effects implied by the equations.

AMALGAMATIONS. Translation between social classifications and affective representations might be more complicated than considered so far. A definition of the situation might assign a person an identity (e.g., Doctor) along with a status characteristic (the Old Doctor), a personality trait (the Extroverted Doctor), or a mood (the Hostile Doctor). Redefining a situation after an unexpected event might involve assigning a new identity, or the original identity might be modified by a status characteristic, trait, or mood to understand why the event occurred.

Structural equations can be obtained to describe how identities and modifiers amalgamate. In an exploratory study, Averett (1981) obtained EPA ratings for identities and modifiers out-of-context and for modifier-identity combinations. Then equations were derived for predicting the combination ratings from the out-of-context ratings. The following, for example, is the equation for the evaluation outcome.

$$A_e = -.30 + .61M_e - .13M_p - .17M_a + .50I_e - .01I_p - .05I_a$$

This says that evaluation of an amalgamation (A_e) is mainly a function of modifier evaluation (M_e) and identity evaluation (I_e), but modifier potency and activity also contribute. Averett showed that structural equations for amalgamations are similar whether the modifier is a status characteristic, trait, or emotion word (the above equation was obtained by combining all three kinds of data). She also demonstrated that amalgamations operate in reaction equations exactly as do singular identities.

The modifier-identity equations describe how modifier and identity sentiments combine into a melded sentiment. An inverse process is involved in selecting modifiers for partial reidentifications. Analytically, the problem is as follows. An identity profile is given by the original definition of the situation, a computed profile which would explain a given event is provided by proaction equations, and the modifier-identity equations must be solved for the modifier profile which would combine with the original identity profile to produce an amalgamate equivalent to the computed profile. This is the equation for the required modifier evaluation.

$$M_e = .55 + 1.72A_e + .32A_p + .36A_a - .87I_e - .18I_p - .16I_a$$

For example, an observer might want to modify the identity of a son (EPA: 1.7 0.1 1.8) who disobeys his father. The appropriate profile for someone who disobeys a father is computed from proaction equations with actor as the unknown, giving -1.1 0.8 1.0 —this is the required profile for an amalgamation of Son and some modifier to account for the event. Substituting the given profiles into the last equation, we find that the adjective should have an evaluation of -2.6 .

Affect control theory hypothesizes that emotions are sensations of congruency and noncongruency between one's identity and the self-impressions produced by recent events. When people talk about a discrepancy between a person's self-sentiment and transient feelings, they do so in terms of emotion labels. The inverted amalgamation equations serve a second function in describing emotion attribution processes. They allow us to compute the EPA profile for an emotion word ($M_eM_pM_a$) that could be combined with the identity profile ($I_eI_pI_a$) in order to describe a current transient feeling ($A_eA_pA_a$).

EXAMPLE. The following example illustrates how the various equations in affect control theory can be used to model social interaction.

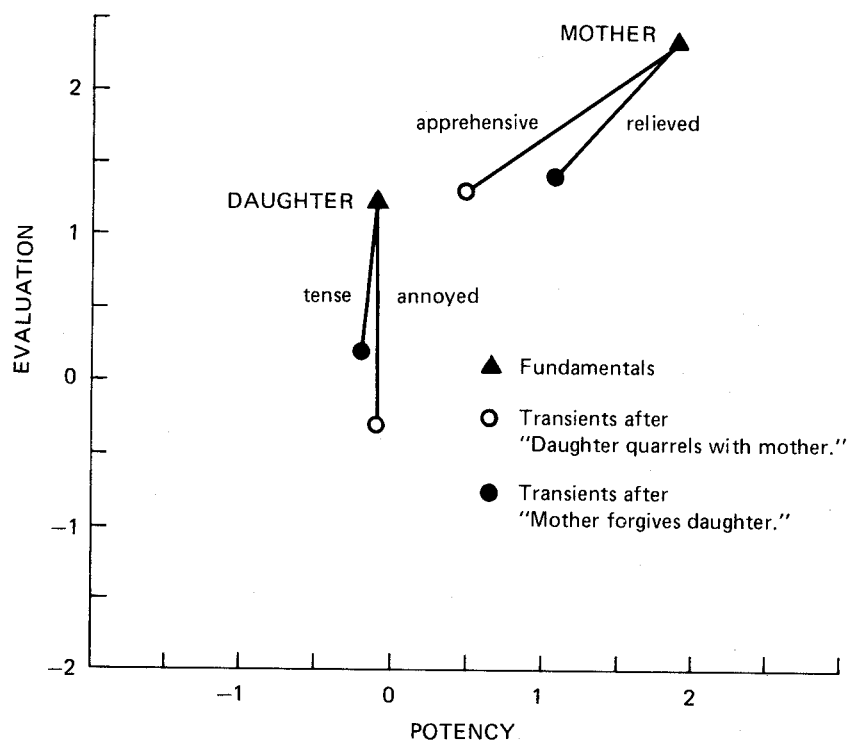
The example focuses on a mother and daughter and on how the mother might respond to an unexpected behavior from the daughter. The entire analysis was conducted using EPA dictionaries from southern U.S. female undergraduates; EPA profiles are given in parentheses. Affective dynamics for the event sequence are graphed in Figure 1. The graph shows evaluation and potency changes; activity dynamics are relatively unimportant in this interaction.

A woman, taking the role of Mother (fundamental: 2.3 1.9 0.0), is with her Daughter (1.2 -0.1 0.9).

To begin, we initialize transient feelings equal to fundamentals. A routine analysis would solve the proaction equations for behavior profiles and look these up in an EPA dictionary in order to define the kinds of acts that are sentiment-confirming in the situation. Such an analysis indicates that a mother normally might engage in nice, strong acts (2.0 1.7 0.1) toward a daughter—behaviors like Assist, Educate, Support, Aid, Cheer, Interest, Guide, Encourage. A daughter theoretically would engage in nice, lively acts (1.3 0.1 1.4) toward a mother—Rally, Amaze, Speak to, Idealize, Alert, Astonish, Appease, Exalt.

Suppose, however, that the daughter is in a bad mood, and she Quarrels with (-1.1 0.0 1.3) her mother. Applying the reaction equations, we find that the daughter's negative act reduces the mother's transient

Figure 1 Affective Dynamics for an Event Sequence



goodness and potency (to 1.3 0.5 -0.1). The inverted amalgamation equations are applied to find the profile of an emotion word that can combine with Mother and produce the transient profile. The result (0.5 -1.0 0.0) corresponds to an emotion attribution of Apprehensive for the mother. From the mother's standpoint, the behavior also disturbs the daughter's transient (to -0.3 -0.1 1.2), and an emotion analysis suggests that the mother would suppose the daughter feels Annoyed.

The mother might try to understand the event better by reconceptualizing her daughter. Since the event is only moderately disconfirming (5.7 units of deflection), the mother probably would not seek a full identity shift but rather a modification of the daughter identity. First we solve the proaction equations to get the profile for the kind of actor who would quarrel with a mother (-1.1 0.0 1.3). Then we apply the inverted amalgamation equations to get the profile (-.2 -0.1 0.5) for a modifier that could combine with Daughter, yielding the reidentification profile as

an amalgamate. The modifier profile is looked up in a dictionary of modifiers, and we find that the mother might consider her daughter Inconsiderate. This redefinition of the daughter would reduce deflection units to 3.1.

Alternatively, the mother could try to recover through action. To predict what the mother might do, we apply the proaction equations to the original sentiments and to the mother's and daughter's transients after the first event, solving for a behavior profile. The result (2.1 2.3 -1.4) corresponds to acts like Calm, Soothe, Pray for, Forgive. If the mother were to forgive the daughter, she would improve her transient (1.4 1.1 0.0), and an emotion analysis indicates that the mother then would feel Relieved. The mother also would see the daughter's transient as being somewhat improved (0.2 -0.2 0.9), although the mother would suppose that the daughter still feels Tense.

OPERATIONALIZATION. The affect-control model operationalizes situational logic by requiring categorizations of relationships and participants when the situation is defined. Currently, relationships are categorized as Verbal or Physical (to deal with touch-behaviors) and also as Primary (admire, hate), Economic (pay, hire), Managing (command), Fixing (heal), and Training (instruct). Identities are categorized as Male or Female, and also as Casual (friend, dope), Ascribed (adolescent), Legal (judge, criminal), Trade (doctor, prostitute), and Sociosex (wife, adulterer). All words in the behavior and identity dictionaries have been assigned binary codes corresponding to these categories, and a word is retrieved for event construction only if it fits the configuration that was given as an input.

For example, "medicate" is coded 0100010—not verbal, physical, not primary, not economic, not managing, fixing, not training—and this behavior can be retrieved only in relationships that are characterized as physical and fixing. "Thief" is coded 1110110—male, or female, casual, not ascribed, legal, trade, not sociosex; thus, the identity is recalled in reidentification analyses only when the person initially was characterized as either male or female, and able to take on casual, legal, or trade roles in the situation.

The categorization systems are provisional. Future research will seek a more refined system for classifying relationships, following empirical leads of Triandis (1977) and Marwell and Hage (1970) and the theoretical lead of Parsons' pattern variables (1951). Taxonomic methods (Werner and Fenton 1970; Spradley 1979; Heise 1982) may be fruitful for producing a more refined system of componential analysis.

Evaluation of the Theory

Computer Simulations

Computer simulations to expedite computations and dictionary searches have been part of affect control theory since the theory was first formulated in the early 1970s. Simulation analyses in affect control theory receive natural language specifications of a social situation and produce natural language predictions concerning the behaviors and reconceptualizations that might occur. Three analyses in Table 3 illustrate computer simulation capabilities as of 1983. The Doctor-Patient analysis deals with an occupational role. Mugger-Victim analyses involve a deviant role. The second Mugger-Victim analysis indicates how a particular setting might influence behavior.

The Doctor-Patient analysis is set up with a male seeing himself as Doctor. (External inputs are italicized in the table.) The program retrieves the male EPA profile for Doctor, 1.8 2.1 -0.3.

The doctor sees his interaction partner as a Patient, male EPA: 0.1 -1.7 -0.8. The doctor's relationship to the patient is defined as verbal, physical, managing, fixing, so only behaviors of these types will be retrieved in defining his conduct. The second person is a female who sees herself as Patient and the man as Doctor. The program retrieves the female EPA for patient, 0.2 -1.6 -1.0, to represent her sentiment toward self, and the female EPA for Doctor, 1.7 1.8 -0.3, to represent her sentiment toward the doctor. The patient's conduct is limited by a definition of her relationship to the doctor as verbal, physical, primary, exchange.

The program computes an EPA profile defining behavior for the doctor that would best confirm his sentiments toward self and other, 1.4 1.1 -1.0. A dictionary search indicates that this profile fits Considering, Soothing, Cautioning, Calming, Listening to, Esteeming, Counseling, Medicating. The program also computes the profile for sentiment-confirming behavior of the patient toward the doctor, 0.4 -1.1 -0.3, and behaviors fitting this profile are Worshipping, Revering, Submitting to, Idolizing.

Doctor soothing the patient is treated as an event that occurs. This generates 1.2 units of deflection for the doctor, 1.0 units for the patient, the two being slightly different because of differences in male and female EPA profiles. The doctor's transient feelings after the event theoretically can be characterized by emotion labels fitting the profile 1.8 0.5 -0.6: Sympathetic, Peaceful, Satisfied, Relieved, Affectionate, Grateful, Warm, Kind. The doctor's transient feelings toward the patient are interpreted

Table 3 Simulations Based on Affect Control Theory

Example 1

Doctor sees self as:

doctor 1.8 2.1 -0.3

In general, Doctor can take roles which are:

male, trade

Doctor sees Patient as:

patient 0.1 -1.7 -0.8

Doctor sees the relationship as:

verbal, physical, managing, fixing

Patient sees self as:

patient 0.2 -1.6 -1.0

In general, Patient can take roles which are:

female, casual

Patient sees Doctor as:

doctor 1.7 1.8 -0.3

Patient sees the relationship as:

verbal, physical, primary, exchange

- 1: Doctor might [1.4 1.1 -1.0] consider Patient (or soothe, caution, calm, listen to, esteem, counsel, medicate her).
- 2: Patient might [0.4 -1.1 -0.3] worship Doctor (or revere, submit to, idolize him).

Assume Doctor does *soothe* Patient and the setting is unnamed. Then:

Doctor feels [Deflection units = 1.2] [1.8 0.5 -0.6] sympathetic, peaceful, satisfied, relieved, affectionate, grateful, warm, kind.

Doctor supposes Patient feels [1.2 0.2 -0.1] grateful, relieved, sympathetic, hopeful, satisfied, sentimental, affectionate, peaceful.

Patient supposes Doctor feels [2.0 0.7 -0.5] grateful, sympathetic, kind, compassionate, satisfied, serene, warm, peaceful.

Patient feels [1.0] [1.2 0.3 -0.1] relieved, grateful, sympathetic, sentimental, serene, pleased, satisfied, warm.

- 1: Doctor might [1.2 1.7 -1.0] counsel Patient (or medicate, console, explain, calm, consider, instruct, reassure her.)
- 2: Patient might [.4 -1.6 -0.2] [undefined] Doctor.

Example 2

Mugger sees self as:

mugger -2.9 0.4 1.8

Table 3 (Continued)

In general, Mugger can take roles which are:

male, casual, legal, trade

Mugger sees Victim as:

victim -0.3 -1.8 -0.4

Mugger sees the relationship as:

verbal, physical, primary, exchange, managing

Victim sees self as:

victim 0.1 -1.8 -0.6

In general, Victim can take roles which are:

female, casual, legal

Victim sees Mugger as:

mugger -2.1 1.0 1.5

Victim sees the relationship as:

verbal, exchange

- 1: Mugger might [-2.0 0.0 2.4] haze Victim (or molest, bully, insult, taunt, curse, jeer, laugh at her).
- 2: Victim might [-0.2 -0.3 -0.7] doubt Mugger (or disbelieve, placate, sweet-talk, implore, beg, evaluate, patronize him).

Assume Mugger does *bully* Victim and the setting is unnamed. Then:

Mugger feels [0.6] [-0.6 1.0 0.8] possessive, belligerent, furious, lustful, angry, cocky, defiant, aggressive.

Mugger supposes Victim feels [0.3 -0.4 0.0] shocked, snowed, spacey, anxious, surprised, grateful, relieved, blue.

Victim supposes Mugger feels [-0.8 0.5 0.7] belligerent, possessive, annoyed, contemptuous, furious, vengeful, angry, coy.

Victim feels [0.3] [.03 -0.5 -0.0] tense, apprehensive, sorry, blue, snowed, apathetic, dissatisfied, regretful.

- 1: Mugger might [-2.0 -0.2 2.4] molest Victim (or taunt, laugh at, haze, jeer, curse, doublecross, aggravate her).
- 2: Victim might [-0.2 -0.3 -0.9] placate Mugger (or disbelieve, doubt, beg, evaluate, patronize him).

Example 3

The setting is: *mob*

Mugger EPA: -1.5 2.2 1.9

Victim EPA: -1.2 1.8 2.0

Mugger sees self as:

mugger -2.9 0.4 1.8

Table 3 (Continued)

In general, Mugger can take roles which are:

male, casual, legal, trade

Mugger sees Victim as:

victim -0.3 -1.8 -0.4

Mugger sees the relationship as:

verbal, physical, primary, exchange, managing

Victim sees self as:

victim 0.1 -1.8 -0.6

In general, Victim can take roles which are:

female, casual

Victim sees Mugger as:

mugger -2.1 1.0 1.5

Victim sees the relationship as:

verbal, exchange

- 1: Mugger might [-1.8 0.0 0.1] neglect Victim (or spoil, shame, haunt, undermine, discredit, mislead, forsake her).
- 2: Victim might [-0.2 0.1 -0.3] disbelieve Mugger (or implore, doubt, evaluate, sweet-talk, coax, patronize, refuse him).

Note: Inputs are italicized; triplets of numbers are EPA profiles.

by supposing that he attributes consequent emotions to her which fit the profile 1.2 0.2 -0.1: Grateful, Relieved, Sympathetic, Hopeful, Satisfied, Sentimental, Affectionate, Peaceful. The analysis indicates that the patient arrives at different emotional interpretations than the doctor because of gender differences in sentiments, though the results are similar in this case because the sentiments are not very different.

The program then derives the sentiment-confirming events that might occur next, given that transients were changed by the doctor soothing the patient. The doctor now would have to act less nice, more powerful, more quiet, and verbal implementations of the EPA profile are more instrumental than they were on the first round. The patient would have to act weaker than she might have done on the first round, so much so that no entries in the behavior dictionary provide a reasonably close implementation for her affective determination.

The next analysis involves a male Mugger with a female Victim. The mugger-victim relationship is defined as verbal, physical, primary, exchange, managing. The victim to mugger relationship is defined as verbal and exchange. Computations indicate that the mugger's sentiment-

confirming act would be bad and lively: Hazing, Molesting, Bullying, Insulting, Taunting, Cursing, Jeering. The victim could confirm her definition of the situation by quiet acts toward the mugger; words retrieved are Doubt, Disbelieve, Placate, Sweet-talk, Implore, Beg, Evaluate, Patronize. Assuming that the mugger bullies the victim, he might feel Possessive, Belligerent, Furious, Lustful, while the victim feels Tense, Apprehensive, Sorry, Blue. Having bullied, he might act slightly weaker, and the victim's behavior options on the second round are slightly quieter than they were on the first round.

The last example in Table 3 presents the mugger and victim again, but this time in the specified context of a Mob. The analysis suggests that the mob setting might substantially reduce the activity of the mugger's behavior, to the point where he might Neglect or Forsake the victim. The explanation is that the mugger has to maintain the meaning of Mugger, Victim, and Mob all together, with Mob contributing to impressions produced by any event he creates. His actions are muted as a net result.

The simulations indicate that affect control theory can account for normal role behavior and for creative responses to deviant acts—either sanctioning or labeling. Simulated emotions are reasonable enough to encourage the idea that emotions are subjective signals about how events have created deflections from fundamental sentiments. Simulations with specified settings are provocative enough to hypothesize that settings integrate directly into event processing, beyond limiting how a situation is defined.

Empirical Studies

Wiggins (1980) tested the accuracy of some predictions from affect control theory by presenting college student respondents with two sets of twelve scenarios like the following. The first example focuses on behavior intentions; the second example focuses on behavior expectations.

You (a student) are in a room with a doctor and a nurse. The doctor compliments and encourages you and then leaves. How likely is it that you would do each of the following things to the nurse?

You (a student) are in a room with a doctor and a nurse. The doctor compliments and encourages the nurse and then leaves. How likely is it that the nurse would do each of the following things to you?

Different scenarios were created by choosing evaluatively positive or negative identities for the two nonrespondent characters (e.g., Doctor and Nurse), and by making the priming actions (e.g., compliment and encourage) evaluatively positive, negative, or neutral. Behaviors presented for likelihood ratings were results from simulations for all scenarios.

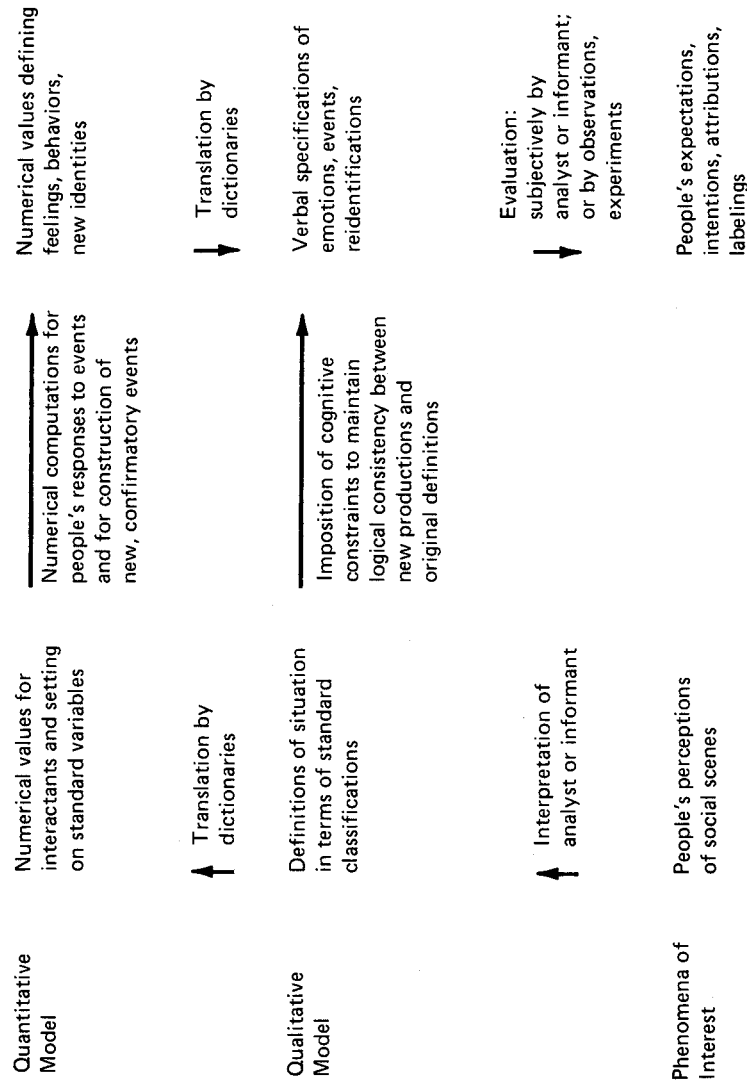
Wiggins correlated the respondents' likelihood ratings with the total amount of deflection produced by each behavior option in each scenario. In the case of intentions, the correlation was $-.50$ for male respondents and $-.36$ for female respondents (negative correlations indicating that smaller deflections go with higher likelihoods, as predicted). For behavior expectations, the correlations were $-.71$ for males and $-.67$ for females. Thus, respondents' indications of what they expect in interaction sequences correspond substantially with the deflection principle in affect control theory.

Wiggins carried out an experiment to ascertain whether affect control theory predicts actual behavior. A nonintuitive prediction from the theory was the focus: If a person with a positive self-identification experiences a negative event, then he or she should act unusually pleasant toward a valued interaction partner, but unpleasant toward a disvalued interaction partner. Behaving positively toward a valued other offers a way of recovering one's spoiled identity; avoiding positive behavior toward a disvalued other keeps one's predicament from getting worse.

This was tested by setting up a pseudo-study of interpersonal communication with university students as subjects. An actress playing a secretary appreciated or humiliated subjects while they were in the presence of their communications partner—another actor who was identified as a positively valued other (university student) or a negatively valued other (delinquent). The secretary left the room after her manipulation action, and the communications partner then elicited behavior from the subject by asking "What time is it?" and "What do we do now?" Subjects' behaviors before and after the appreciation-humiliation manipulation were videotaped and judged later by other students as to pleasantness or unpleasantness. Variations in subjects' behaviors corresponded to the predicted pattern. In particular, humiliated subjects acted friendly and ingratiating toward another student but cool and unfriendly toward a delinquent.

Thus, available empirical tests support ideas in affect control theory. Of course, the theory applies to so many different kinds of social phenomena that it will take years of empirical testing to get a full picture of where the theory's strengths and weaknesses are.

Figure 2 Levels of Analysis in Affect Control Theory



Summary

Levels of analysis in affect control theory are diagrammed in Figure 2. People's perceptions of social scenes are the focus of analyses. These are incorporated into analyses by identifying classifications that participants themselves might make in defining a situation. The qualitative classifications are translated into quantitative values of goodness, powerfulness, and liveliness. A formal model is applied to input profiles in order to derive new profiles representing the outcomes of affective dynamics. The outcome profiles, translated back to qualitative classifications of people or behaviors define event options. Options are further narrowed on a qualitative basis to maintain logical consistency between predicted events and participants' definitions of the situation. Final results are natural language descriptions of events, reidentifications, and emotions that participants should expect at the scene. These can be evaluated by an analyst, by a member of the group being studied, or through observational or experimental studies.

The theory's quantitative model was developed by focusing on simple reaction processes. Measurements on the universal EPA dimensions of the semantic differential were made for systematic samples of events, and equations were derived by applying structural equation modeling procedures to the data, with detailed attention to measurement errors. Proaction equations were derived from the reaction equations through the use of theoretical assumptions and mathematical analysis.

The theory's qualitative model depends on large dictionaries of settings, identities, attributes, and behaviors. The dictionaries allow lay classifications to be used as input and output in analyses, fostering "common sense" evaluations of theoretical productions. Items in the dictionaries are scaled on the three semantic differential dimensions to permit translations between qualitative and quantitative variates. Additional semantic codings of words in the dictionaries focus results from the quantitative model and allow predictions to be constrained to what is possible in a given situation.

Affect control theory proposes that people operate in terms of cultural classifications. A definition of the situation assembles the classifications that are relevant at a particular scene and supplies the sentiments that are to be maintained. Laws of affective dynamics, operating with syntactic principles, extract the accumulated experience that has been condensed into sentiments and allow people to use this information creatively in response to novel circumstances. Distributional rules censor affective products and produce sensible, relevant outcomes. People do not learn which specific events are permissible and which are not. Rather they generate expectations as needed from the meanings of cultural classifications.

Comment

FRED L. STRODTBECK

I once heard Robert Frost describe a theory that he believed he followed in writing poetry. He'd reported that he would think up a good line, "Two paths diverged in a snowy wood." Then, this line, standing alone, controlled the lines that followed, subject to certain artistic constraints. My companion at that talk concurred that Frost may have written his poems in that way but he doubted that *Paradise Lost* was so composed.

My guess is that many of you have similar reactions to Heise's microsocial model. For this reason, a part of my task is to be sure that Heise's *medium* does not interfere with your understanding of Heise's *message*. To start historically, W. I. Thomas (1928), in his address as president of the American Sociological Society, stated:

In approaching problems of behavior it is possible to emphasize—to have in focus of attention for working purposes—either the attitude, the value, or the situation. The attitude is the tendency to act, representing the drive, the affective state, the wishes. The value represents the object or goal desired, and the situation represents the configuration of the factors conditioning the behavior reaction.

He also commented:

It is possible to work from the standpoint of adaptation. Any one of these standpoints will involve all the others, since they together constitute a process. [pp. 154–55]

During the intervening fifty years, the idea of feedback between elements in the attitude-behavior equation has persisted and been strengthened. The cognitive dissonance phase of social psychology (1957 to 1969) enabled the field to become more explicit about the conditions under which successful enactment changes beliefs in what are called counterattitudinal situations. Heise's responsiveness to this and related developments can be illustrated in his restatement (1979) of balance theory in terms of *actors* and *events*:

First, events produced by good actors are felt to be somewhat nicer than those provided by bad actors. Second, a good act produces a positive impression and a bad act produces a negative impression, regardless of other considerations. Third (the balance principle), goodness comes from good acts on good objects or from bad acts on bad objects; negative impressions result from good acts on bad objects or bad acts on good objects. [p. 18]

The key to understanding what Heise has accomplished is the insight that he has combined the thought styles of Heider and Thomas. It is error to focus on the fact that Heise's system enables him to produce quantitative predictions of what will result when a wide range of actors, acts, and situations are combined. The quantification he produces is wholly subordinate in importance to the fact that the quantification can be used for retrieval. I suggest and attempt to demonstrate that *retrieval* is the dynamic element in Heise's system.

Has Heise diminished free will, has he done away with the playfulness and planfulness of social action, or, more sociologically, has he broken with the voluntaristic social theory of Weber and Parsons? You must answer such questions for yourselves. There are, however, three points I'd like to make: (a) Rational or purposive action does not exclude the sentiment and emotion with which Heise works; (b) the complex world of semantic meaning that Heise addresses should not be depreciated by being thought of as a nonrational residue of economic action; and (c) if voluntarism is to be operationalized on the microsocial level, what better way to do this than by visualizing an actor selecting one of the eight alternatives provided by Heise's system?

Heise has accepted the guidance of social psychological theory (in addition to common sense) in the imposition of categories and cognitive constraints. He uses Osgood's semantic differential dimensions as a filing rationale, and then uses the filing dimensions to characterize his results. His challenge to other investigators is: Can you find a better way to characterize the affective connotation of words? And one of the reasons that the evaluation of Heise's system is difficult is that, at the moment at least, there are no visible competitors.

To clarify the way the filing and the constraints are related, let me illustrate: Three terms such as dog (1.1, 0.6, 1.1), heart (1.6, 0.3, 1.1), and courage (1.7, 0.4, 0.6) are, in Osgood's dictionaries, good, slightly potent, and lively. They are therefore located within a tiny sphere in semantic differential space. Heise has dropped excess terms and reorganized his dictionaries into four semantic differential spaces: 765 *identities* (kinds of people), 440 *attributes*, 600 *behaviors*, and 345 *settings*.

This means that when he searches at plus one, evaluation, plus a half, potency, and plus one, activity, in the attribute dictionary he's not going to encounter animals or bodily organs. He'll find courage and the seven other words most similar in connotation. There are also cross-cutting constraints involving sex of actor. Thus, to restate the earlier point, retrieval under constraint is the dynamic element in Heise's theory for, after retrieval, he postulates an act of selection, guided by the rule of eight, in order for the interaction to continue.

Without more firsthand experience, it's hard to assess the potentiality of the method in suggesting experiments and guiding the analysis of natural texts. Some have assumed that emotion is a further signal to help recognize good from bad intent on the part of powerful or powerless others who are either active or passive. From such a perspective, one may conclude that Heise's work is relevant to conflict theory—particularly conflict management. It is not inconceivable that extensions of his methodology might be used to blot out affect concomitants during the management of interpersonal distance, say in the successive acts of spouses. The feedback loops between original ratings and applications to natural behavior are robust and have the inherent flexibility to come alive in quite unexpected ways.

General Discussion

Ronald Burt: I have a problem with your procedure because of results on related items that a set of students in one of Columbia's summer research seminars found. The question of their research was the meaning of cognitive space. We exposed people to a variety of hypothetical situations, created as vignettes using, on a much narrower scale, the same sort of conditions you do. Respondents were also asked to interpret their especially close relations with real people, on the same dimensions used to interpret the vignettes. If you looked at the semantic or cognitive space for real people versus the semantic space of hypothetical relations, you found that movement through the space was different. I had the feeling that there was regional rationality in the meaning of relationships—there were places in the total space within which one logic worked but when you crossed boundaries, different logics were invoked. The interesting substantive questions are then: What are the logics within and across these spaces? What are the boundaries that create logics for interpreting relations within regions of the space? Without knowledge of the boundaries, one should find many interaction terms, so that one gets very complex models because one has not taken the segmentation in the cognitive space into account.

David Heise: Without going into more detail it sounds like it is indeed a question of different positioning of these persons in the space and, exactly as you say, the interpretations that would come out of this kind of modeling would be based on very elaborate interaction terms. Your point is that there is qualitative variation of rules in the space. And I think that's a very interesting idea to study empirically.

Siegwart Lindenberg: The computer has selected my reaction to your paper: hopeful, emotional, astonished, and puzzled. My question has to do with the stability of sentiments. In your model, "mother" is always good, "thief" is always bad, and so on. Why do you think these sentiments are so stable? I think these sentiments change under certain constraints. For instance, take parents with a child and change their social situation. The parents are becoming richer, so that they can afford to go out a lot, which increases their opportunity costs for "parenting." This will probably change the meaning of all sorts of roles, for both the

parents and the child. In your model, the meaning is there and we adjust our behavior in such a way that it would reproduce the meaning that we thought was there. But when do people adjust meaning to fit behavior and when do they adjust behavior to fit a given meaning?

David Heise: At present there is no specific part of affect control theory that tells how these fundamental sentiments change. But there will be. The additional theory will allow us to say how events that have occurred in the past are incorporated to change meanings. Then "rich" might be combined with "parent." In the middle-class subculture in which these ratings are obtained, "rich" is not particularly good. It is extremely powerful and it is kind of quiet and the net impact of combining "rich" with "parent" would be to move the expected behaviors in those directions.

In the short term meaning or sentiment is the independent variable, the variable from which all of these analyses derive. But in the long term, events are ecologically or rationally created. An event can become an exemplar and define the proper sentiments toward particular roles. The meaning of the exemplar event becomes an independent variable creating responses to a great variety of circumstances, including sanctioning responses and interactions with multiple persons.

Harrison White: I want to make two practical suggestions. Retrieval under constraint is the core of what's going on. I would like to locate that in the space of Chomsky on the one hand and artificial intelligence on the other. My feeling is that the initial presupposition you started with is very Chomskian: There are so many possibilities that there has to be a code and I am going to recover that code. But the Chomsky code hasn't worked out that well. It has proved to be limiting in many ways. I think it would be good for you to move away from that position toward artificial intelligence, which to my amazement is starting to work now. They have found mainly two simple things. First, you have to differentiate more; three is not enough. You want a more refined set of nodes and maybe collapse later. Second, you want much more cycling. I'm not that overwhelmed by any one of your theses and I think you don't yet have enough independent parts, and you have not been cycling enough. If you look at good AI work, it is running a long time before anything comes out. You are still in a way doing on a computer what you could do by hand.

The second suggestion is more practical. I would love to see you do the following. You will find a dozen playwrights in any city. I would love to see you generate some play scripts with your model and then go to a playwright and have him make a script out of this, a play for six-year-old kids in grammar school. Use him as an expert, and then you look and see

what are the few things he did to turn this rather bland piece into something that is, at least for sixth-graders, a script.

David Heise: The playwright idea is very intriguing. I hadn't thought of that. I'll have to move on something like that. On artificial intelligence I absolutely agree. That I had considered before. Unfortunately, I have computer problems even now, regarding memory and computation time. But I think you are absolutely right in the cycling idea.

William Labov: As you know, all linguists have trouble with the Osgood approach, which has to be integrated in some way with the semantic component. People don't look up words by their affective components: they have to locate them first by semantic and syntactic features, and then make finer choices by affective features. But there's also a social dimension to word use that you might want to take into account. I've done some work on the uses of the word "child"—not in the kinship sense, but in sentences like "you're only a child." It appears to have no cognitive meaning here. Dictionaries only define this sense of "child" in a circular manner: "behaving in a childish manner." "Child" is used to assign social rights and privileges: It covers a very different age range in "Children keep out" and "Not for children's use." I don't see how this social use of language would be integrated into your model of the social use of language. There's certainly a difference between social and emotional expression. Harvey Sacks's work on categorization devices is another example of the social determination of word selection. I'm curious as to how those social uses of language can be integrated with the purely emotional dimensions that you use.

David Heise: As a matter of fact the categorization device is used in the theory to explicate the process of defining a situation. We have to assign identities to people that make sense with one another. And that's essentially what a categorization device is. Presumably one could get very specific kinds of models to deal with that and I feel confident they will in fact come from ethnomethodology.

James Coleman: I want to return to the theoretical paradigm that underlies this. The assumption is that people automatically behave so as to obtain optimum confirmation within limits imposed by the situation of recent happenings. In view of that I want to pay tribute to a man named Lecky who wrote a little book called *Self Consistency*. Lecky's notion is similar to that expressed in affect control theory. One of the examples he used was a mother who gives a child castor oil in orange juice so that the child will come not to dislike castor oil, or at least drink it. Instead what happens is that the child comes to dislike orange juice. The event can

generate either of two reactions. Similarly with events which may lead to change in self-conception. What are the kinds of conditions under which events will force changes in self-conception? Even if there is this great tendency to behave in such a way as to confirm one's conception of one's self, that conception changes. What are the conditions under which self-conception undergoes change?

David Heise: This theory is not a theory of self, interestingly enough. This is a theory in which people are taking on continuously different situated identities. Within a situation, an identity could last a long period of time. For example, one could be a professor for decades and take on that identity within a certain context. And the meaning of "professor" as applied to oneself could change. If students kept falling asleep in one's class year after year, you might finally end up saying, "I must be a boring professor." That kind of reinterpretation is very much a part of the model.

James Coleman: Let me add one point. If this notion of affect control is as powerful as you suggest, it might well be that some of the things that Labov was investigating, for instance the difference between formal and casual language in the black community, could be generated by one's desire to confirm one's self-conception.

David Heise: It's an intriguing idea that one might code those variations and put them in a dictionary, find out what their profiles are, and then use that dictionary to analyze someone who is talking casually. A casual speaker then would be put into the model, and that should select different actions.